INTERNATIONAL SEARCH REPORT

Inte upplication No PCT/US2004/023491

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 B01D53/28 B01D B01D53/62 B01D53/50 B01D53/56 C01B6/34 C01B3/56 C01C1/02 C01B33/04 C01B25/06 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 BOID COIB CO1C Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6 391 090 B1 (ALVAREZ JR DANIEL ET AL) 1-21 21 May 2002 (2002-05-21) column 2, line 52 - column 3, line 48 column 5, line 10 - column 6, line 6 column 7, line 13 - line 37; claims 1-14 X WO 03/037485 A (MATHESON TRI GAS INC) 1-21 8 May 2003 (2003-05-08) claims 1-66 X US 6 059 859 A (ALVAREZ JR DANIEL ET AL) 1-17,20 9 May 2000 (2000-05-09) column 5, line 66 - column 6, line 10; claims 1-21 Α US 4 976 944 A (PACAUD BERNARD ET AL) 1-21 11 December 1990 (1990-12-11) claims Further documents are listed in the continuation of box C. Patent family members are listed in annex. Special categories of cited documents : "T" later document published after the international filing date "A" document defining the general state of the art which is not considered to be of particular relevance or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docu-ments, such combination being obvious to a person skilled in the art. "O" document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 12 November 2004 22/11/2004 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo ni, Fax: (+31–70) 340–3016 Eijkenboom, A

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